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TECHNICAL NOTE

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UTILIZATION
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TREE IMPROVEMENT
INSECTS AND DISEASES

HOW TO LIVE WITH THE SEEDLING DEBARKING WEEVIL:

A KEY TO DETERMINE DEGREE OF HAZARD TO PLANTING SITES

Newly established plantations in parts of the Maritimes have recently been heavily damaged from stem girdling by adults of the Seedling Debarking Weevil (Hylobius congener). This insect is a new pest[1] that has become a problem in some areas where plantations have been established within three years of harvesting and where site preparation, if carried out, has caused only minimal disturbance to the soil surface. Although the beetle larvae spend their lives in recently cut softwood stumps and roots, the adults feed on young seedlings, girdling them at the ground line. Fortunately, not all sites are equally susceptible to weevil attack.

A key for rating the degree of risk of planting particular sites is presented here. The key is based on two years of observations of plantation sites throughout the Maritimes in which levels of weevil populations were related to the damage they caused and to the site characteristics. The rating system is tentative and will be updated as more data are analysed. Users are encouraged to report difficulties encountered in using the key and their opinion of its accuracy.

1. The weevil situation in the Maritimes has been reported in two recent annual reports of the Forest Insect and Disease Survey, M-X-159 (1986) and M-X-161 (1987).

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A KEY TO WEEVIL HAZARD AT PLANTATION SITES

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1 a. Site to be planted 3 years or more after last harvesting.....2

b. Site to be planted less than 3 years since harvesting.....3

2 a. Site was completely burned.....LOW HAZARD

b. No site preparation occurred; green softwood remnants undamaged.....LOW HAZARD

c. Site preparation within 3 years of planting; remaining green softwood vegetation disturbed (eg. dozing of young softwoods, not brushraking of dead, dry hardwood)...3

3 a. Site was predominately hardwood at harvest time.....LOW HAZARD

b. Site was predominately softwood at harvest time.....4

4 a. Site located in a region of the Maritimes with a past history of weevil damage to seedlings (particularly P.E.I. and mainland N.S.), consult latest survey information.....5

b. Site is not as above.....LOW HAZARD; however it is recommended to continue with '5' to understand hazard potential. No Maritime areas are completely free of weevils. New damage areas are being detected regularly and our understanding of the regional nature of the problem is incomplete.....5

5 a. Site is predominately moist.....8

b. Site is predominately dry.....6

c. Site is neither of the above.....8

6 a. Site has areas of exposed mineral soil throughout, a consequence of site preparation.....LOW HAZARD

b. Site is mostly covered with organic soils, litter.....7

7 a. Site is a large clear-cut, greater than or =to 50ha (125ac).....13

b. Site is a small cut, less than 50ha(125ac).....14

8 a. Site is mostly covered with organic soils, litter; few areas of exposed mineral soil.....9

b. Site has many areas of exposed mineral soil.....10

9 a. Site is mostly covered with a layer of moss.....HIGH HAZARD

b. Little or no moss exists.....17

10 a. Site is a large clear-cut, greater than or= to 50ha (125ac).....11

b. Site is a small cut, less than 50ha(125ac).....12

11 a. Site is within 5 km of other areas harvested in the preceeding 1 to 3 years.....HIGH HAZARD

b. Site is more than 5km from such areas.....LOW HAZARD

12 a. Site is within 5km of other areas harvested in the preceeding 1 to 3 years.....HIGH HAZARD

b. Site is more than 5km from such areas.....MODERATE HAZARD

13 a. Site is covered by many natural softwood, hardwood or other woody seedlings (more than 20/m2).....LOW HAZARD

b. Site has few naturally regenerating seedlings.....MODERATE HAZARD

14 a. Site is covered by many natural softwood, hardwood or other woody seedlings (more than 20/m2).....LOW HAZARD

b. Site has few naturally regenerating seedlings.....15

15 a. Site is within 5km of other areas harvested in the preceeding 1 to 3 years.....MODERATE HAZARD

b. Site is more than 5km from such areas.....16

16 a. County where plantation site is located has a history of weevil damage.....MODERATE HAZARD

b. County has no history of weevil damage.....LOW HAZARD

17 a. Site is a large clear-cut, greater than or= to 50ha (125ac).....18

b. Site is a small cut, less than 50ha (125ac)).....20

18 a. Site is covered by many natural softwood, hard-wood or other woody seedlings (more than 20/m2).....LOW HAZARD

b. Site has few naturally regenerating seedlings.....19

19 a. Site is within 5km of other areas cut within the last 1 to 3 years.....MODERATE HAZARD

b. Site is more than 5km from such areas .....LOW HAZARD

20 a. Site is within 5km of other clear-cuts harvested within the last 1 to 3 years.....HIGH HAZARD

b. Site is more than 5km from such areas.....MODERATE HAZARD

IMPLICATIONS OF THE VARIOUS HAZARD LEVELS

High Hazard: Expect significant weevil damage. The most reliable remedy is to postpone planting for two years. Site preparation using a method which exposes some mineral soil and covers moss or litter may be beneficial. Trials to verify this theory will be conducted in 1987.

Moderate Hazard: Expect some weevil damage, however in most situations the amount of damage may be considered tolerable (1 to 10% loss of seedlings). Serious damage to the extent of plantation failure is possible but unlikely.

Low Hazard: Planted seedlings will probably establish with minimal or no seedling debarking weevil damage.

OTHER OPTIONS BEING EXPLORED

The use of Swedish plant stockings appears to provide protection but at a price of time and material costs. Further trials will examine this aspect.

Chemical controls have not been developed satisfactorily. Field trials in 1986 were unsuccessful.

The use of tree-wound dressing or tanglefoot as a physical barrier on seedling-stems appears promising but further trials are needed before the method can be recommended.

- Bruce A. Pendrel
Forest Insect and Disease Survey

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